

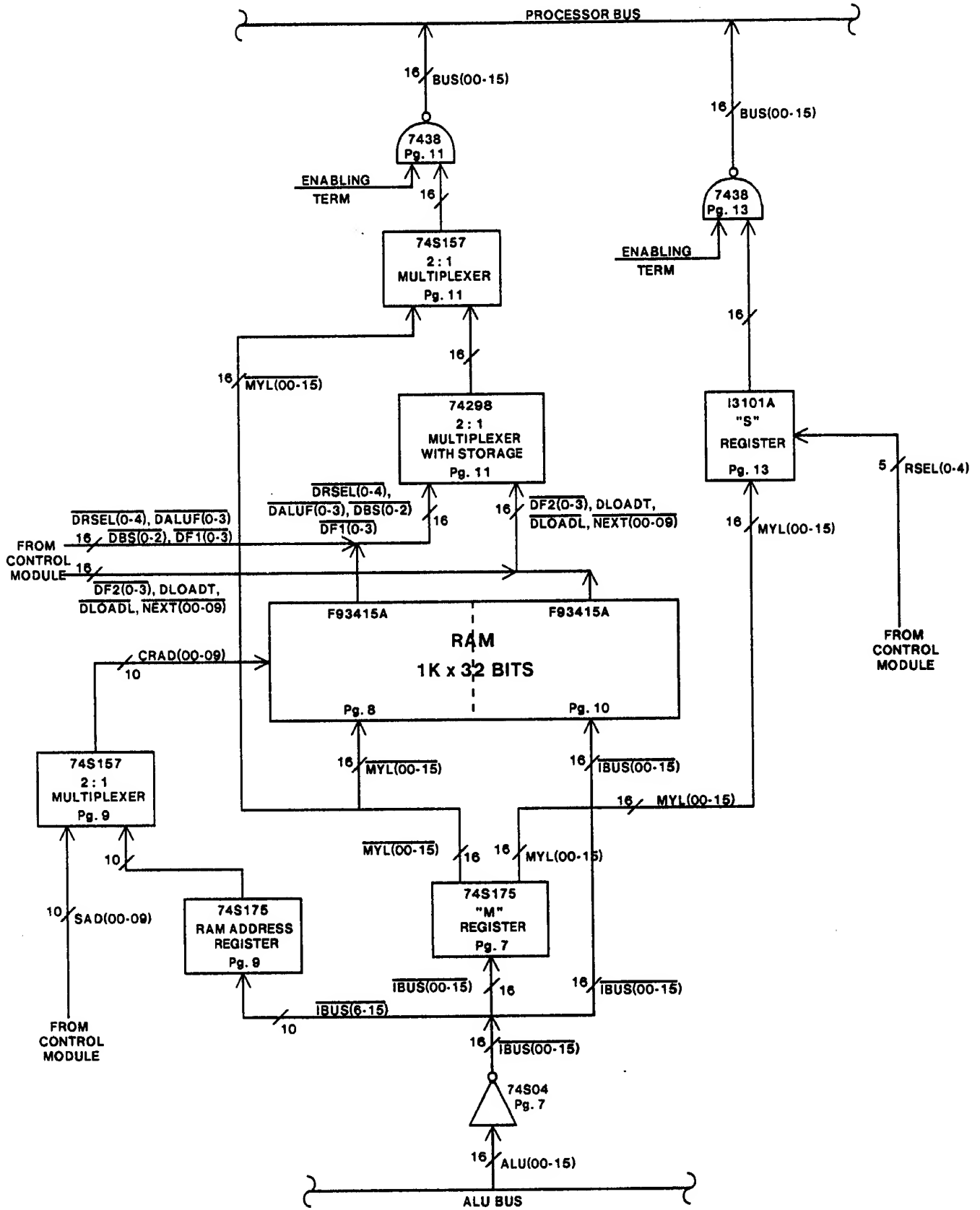
## CONTROL RAM

The Control Ram is a standard logic card containing a fast (90 nsec.) 1024-word by 32-bit read/write microinstruction memory, an even faster (40 nsec.) 32-word by 16-bit read/write memory (S registers), and logic to interface those memories to the Alto's microinstruction bus, processor bus, and ALU output. Unlike other microinstruction memories in the Alto, the larger memory of the Control Ram can hold microinstructions and/or data.

## RAM-RELATED TASKS

The Control Ram performs data manipulation (as distinct from microcode fetching) functions in response to the microinstruction. Not all tasks are likely to be interested in these functions. Moreover, not all tasks will have the appropriate values for the microinstruction uncommitted. A Ram-related task is defined as one during whose execution the Control Ram card will respond to microinstructions. The standard Alto is wired so that the CPU emulator task is the only Ram-related task.

# EXTENDED MEMORY CONTROL RAM MODULE (CRAM) (XM)



ASSY 217176

EXTN MEM

ALTO II CRAM BOARD

33 34  
2 PLACES

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Title  
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ASSEMBLY, PW-  
GRAM  
(EXTN MEM)

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El Segundo, California

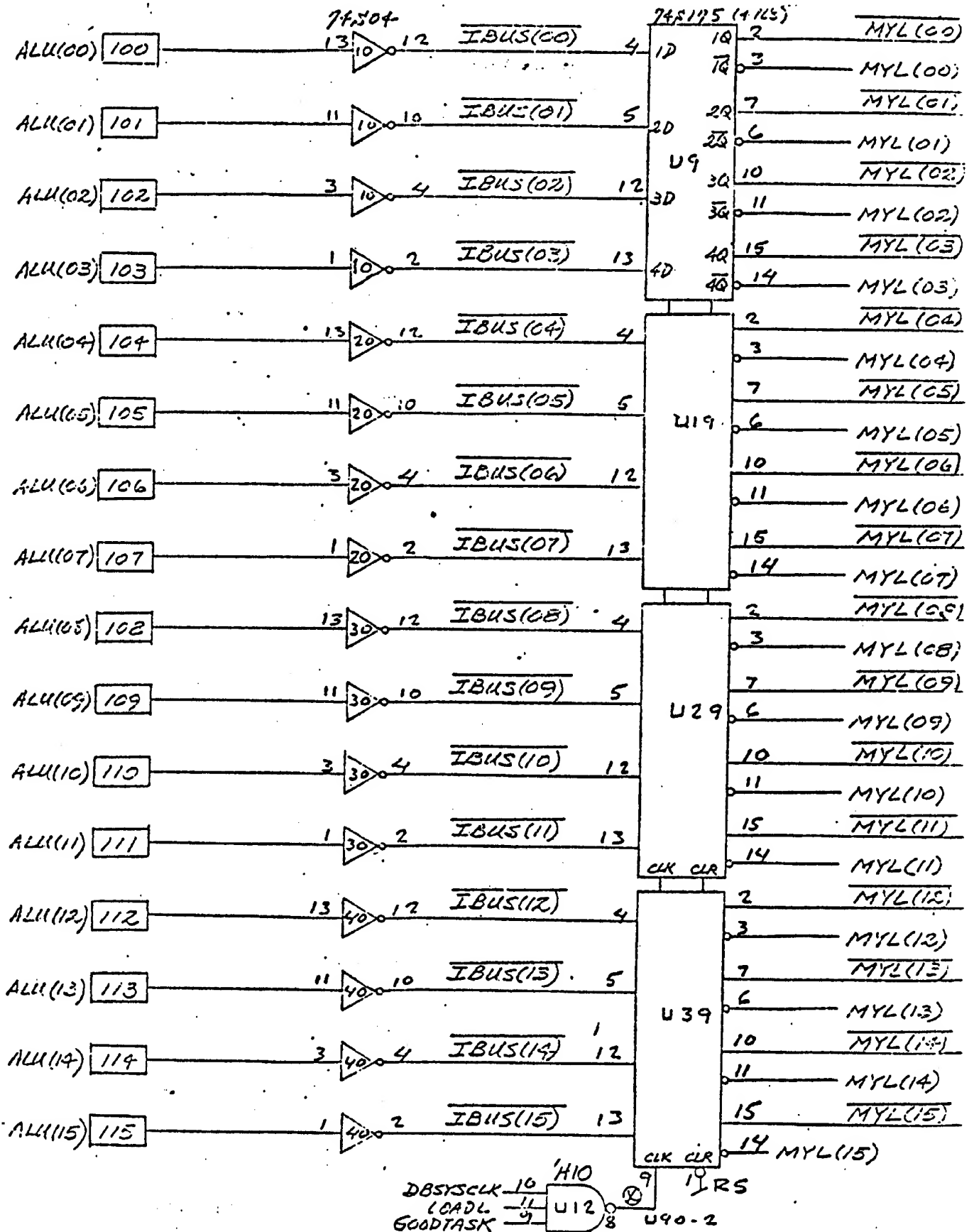
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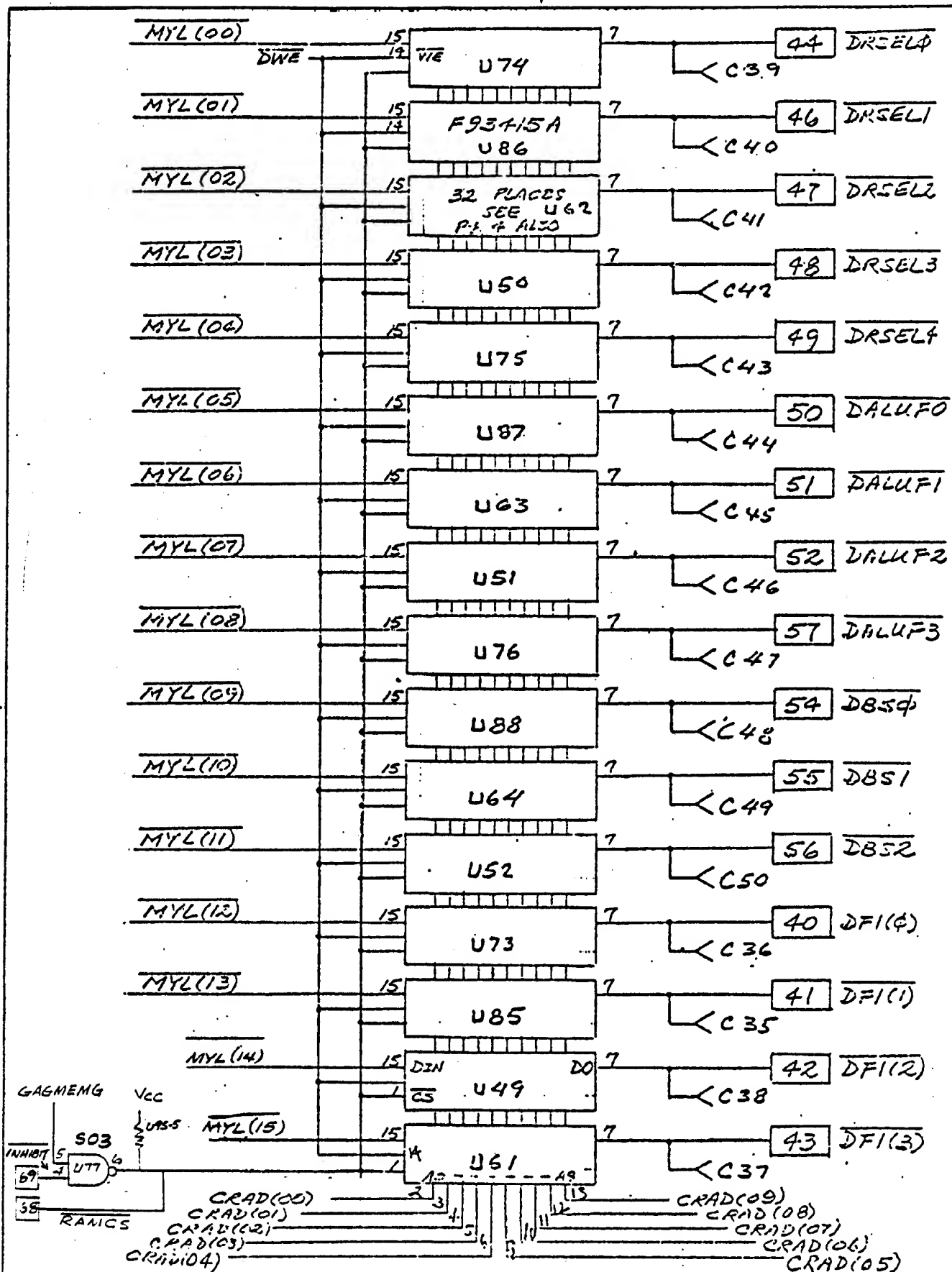
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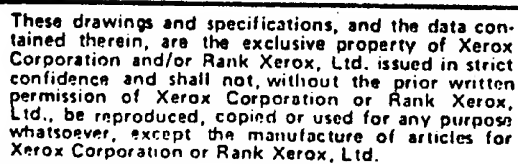
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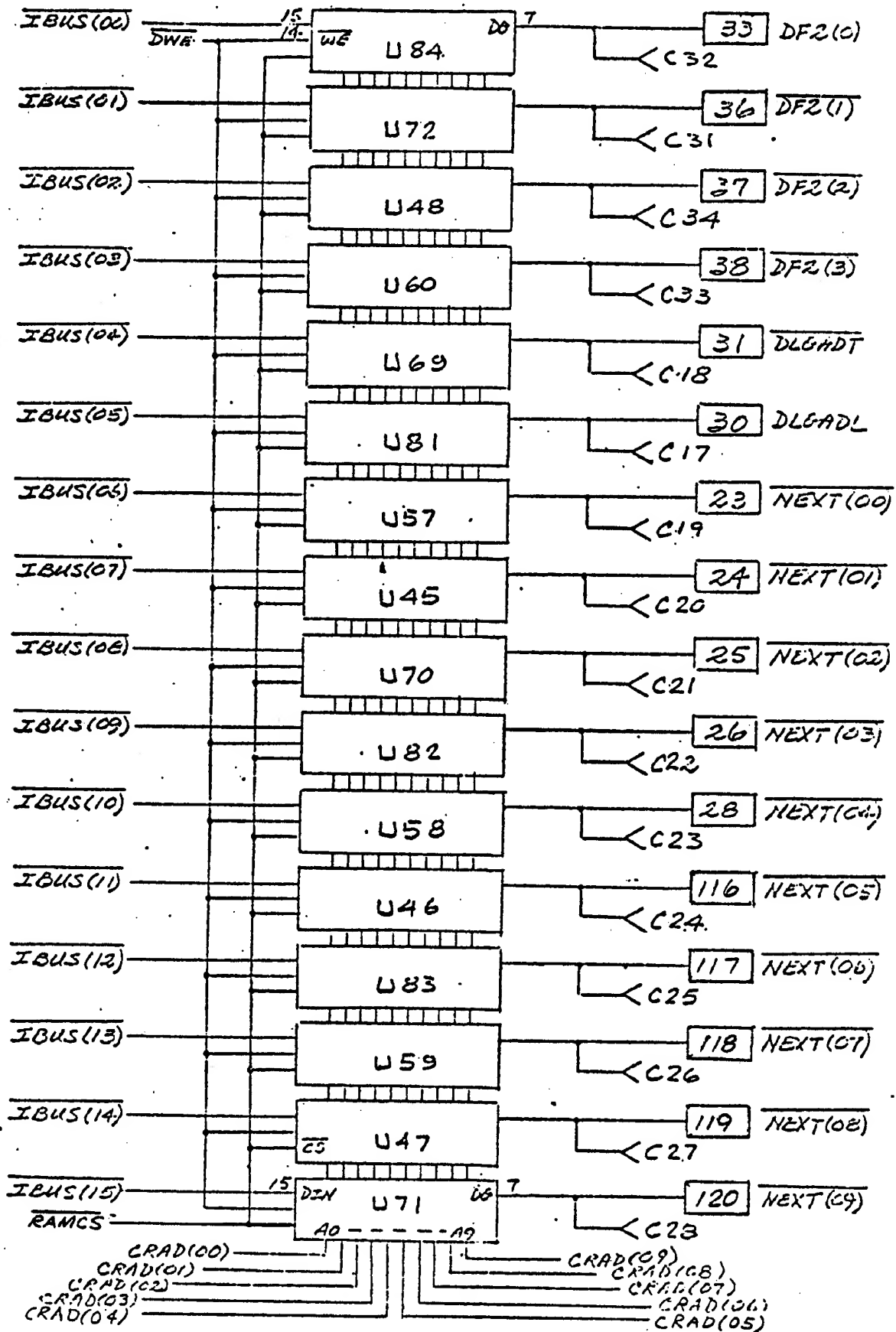
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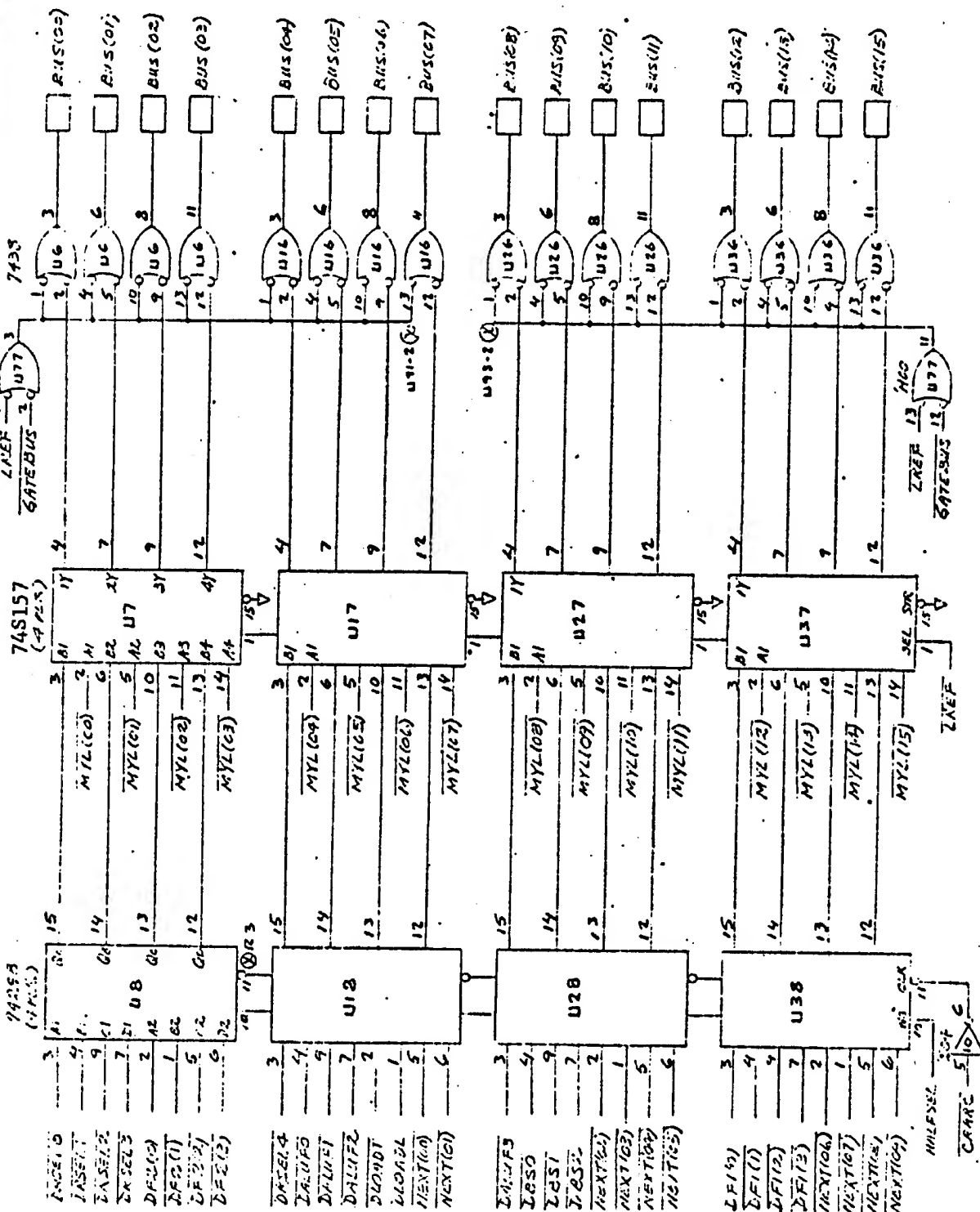
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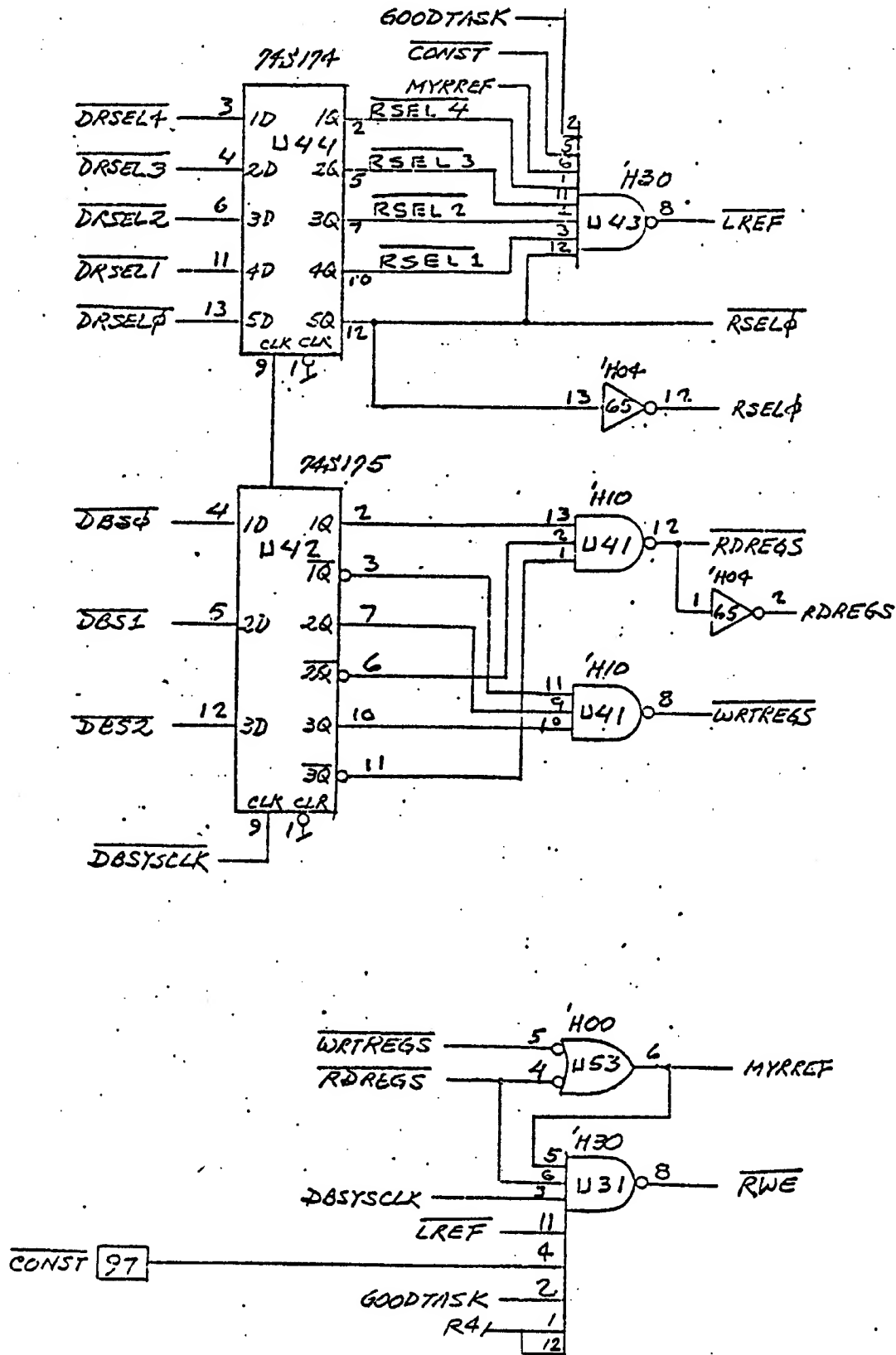
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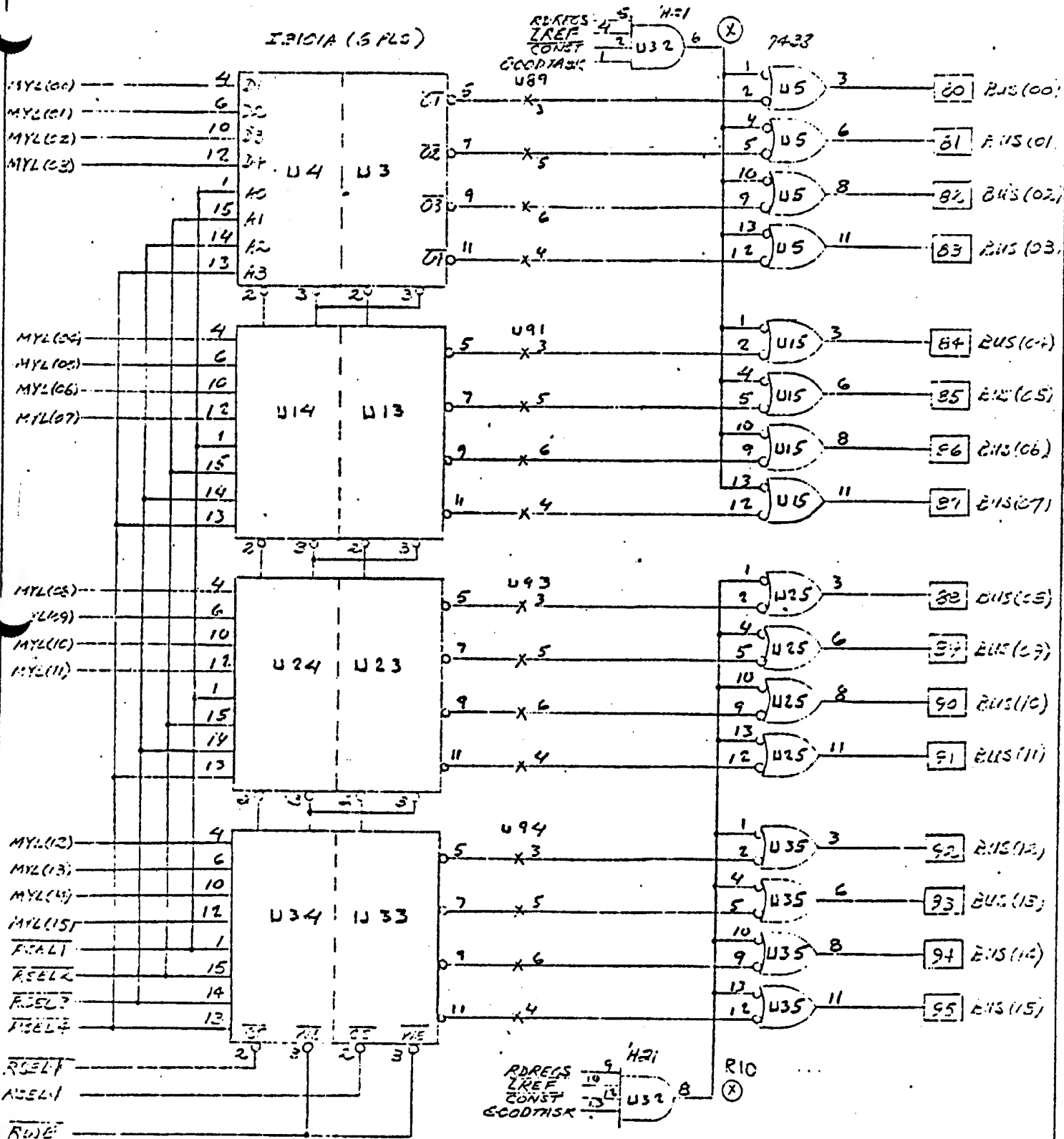
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**GRAM**  
**(EXTN MEM)**

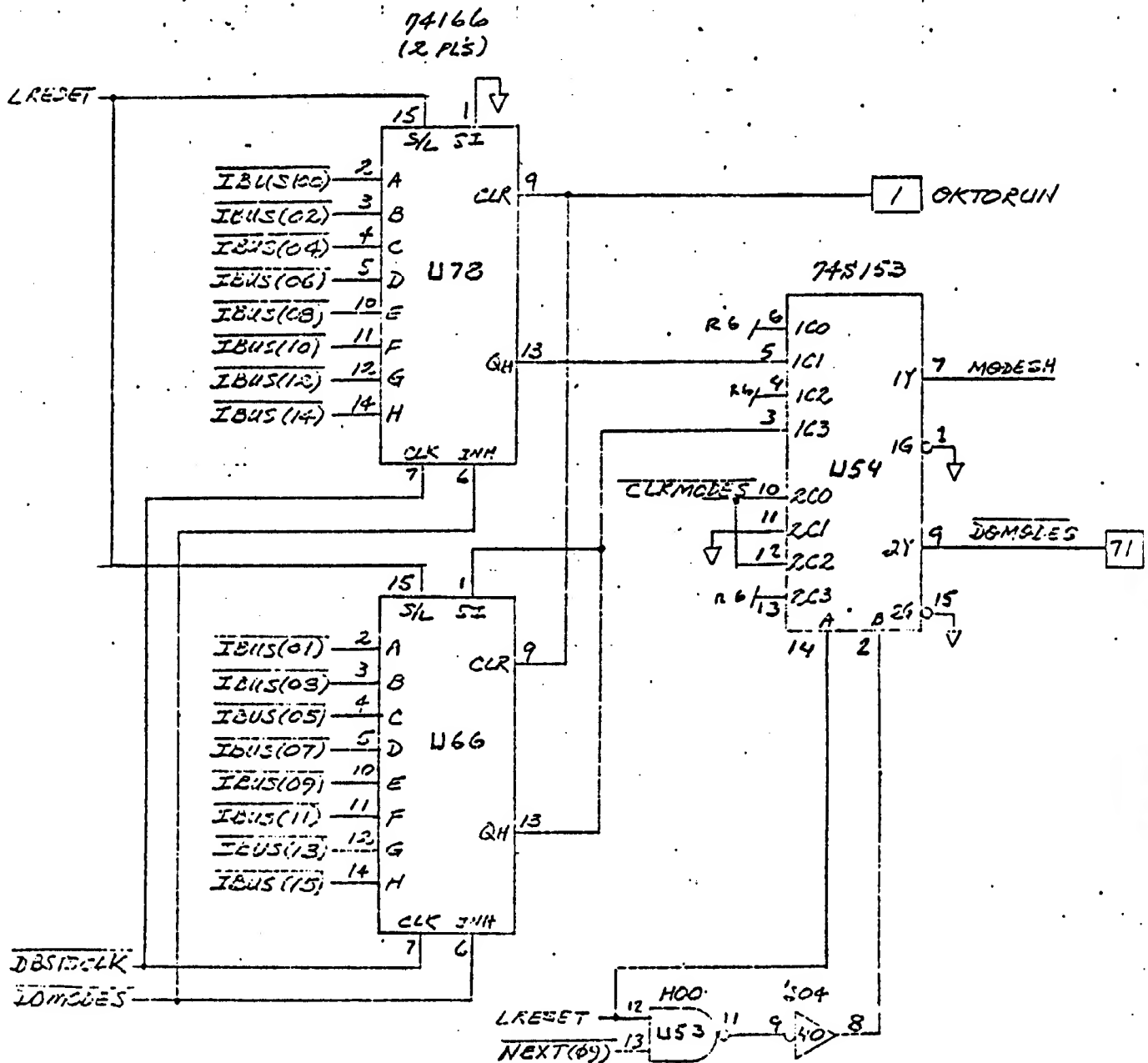
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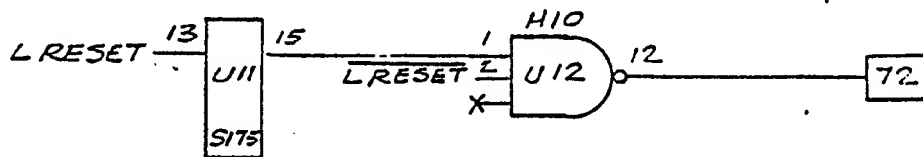
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